

Using 3D printer students design attachment for a quieter leaf blower

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Nate Greene, an engineer at Towson's Stanley Black & Decker, calls the innovation "extremely atypical."

A group of students from Johns Hopkins University signed onto a class [project](#) and were tasked with building a [new product](#) for the multinational tool company. And they actually did it.

Using a campus 3D printer, a team of four seniors at Hopkins designed a new attachment for leaf blowers, capable of quieting some of the harshest decibels of a blower's sound.

"The university's focus is so theoretical," said Greene, who advised the students on their design. "So to find a group that understands the right ways to apply that theory right off the bat ... The team has been not only good at the content they're working on but good at just working through changing projects."

The attachment is a cylindrical nozzle, which allows most of the air from the blower to pass through but directs some of it into thin, helical channels, dampening the high-pitched whine typical of the neighborhood nuisance.

The students chose to target the most annoying part of the blower's sound, said Madison Morrison, one of the mechanical engineering majors who helped create the design.

"We knew that if we could improve the noise quality—even though, obviously, with a blower system, it's hard to completely eliminate noise—it'd be at least a more pleasant experience for your neighbors trying to sleep in or yourself even as the user," she said.

On the cusp of their graduation, the students filed for a patent, and the invention is on its way to manufacturing at Stanley, expected to hit store shelves in about 2026, Greene said.

"The design is super unique. We haven't seen really anything like this in

the industry," Greene said. "Because it is so novel, the team's been able to file a patent. The design is patent-pending, which is a huge step."

The students developed their prototype for a specific DeWalt electric blower, Greene said. Now, the company is evaluating whether their attachment could work for other blowers, too.

When the students began working on the project last August, their mission was simply to quiet the blower. They weren't sure how they'd accomplish it.

At the outset, they had different options, including taking an "active" or "passive" approach, said Michael Chacon, one of the students on the project. The former would be akin to noise-canceling headphones, which generate competing sound waves to cancel out noise. The latter would be similar to a gun silencer, which doesn't cancel out the sound but dampens it. They chose the latter, hoping it would be easier to generate, prototype and install on the blower.

Once they decided they'd create an attachment, made of a type of plastic, they began testing different designs in the 3D printer. Their first iteration was shorter in length and had different shaped channels but already showed promise, Morrison said.

"We were like, 'Wow, this design has so much potential,'" Morrison said. "Going from that [drawing board](#) to: This is in my hand and kind of works? Honestly, that is such a great feeling."

By the end of the project, they'd created more than 40 different prototypes in blue, red, green orange and pink using campus 3D printers. Among the considerations was balancing the performance of the blower with the performance of the noise cancellation, Morrison said.

"If you just slap a muffler on here, well, you're probably not going to blow many leaves," Morrison said.

Under the program, Stanley Black & Decker will have the patent, Greene said. The students will not profit from the [design](#) but will be listed as inventors, an invaluable resume-builder for young mechanical engineers, Greene said.

For their part, the students were thrilled that their idea might go to market.

"It's really exciting to see that something that we made in this class is actually likely going to go to market," said one of the students, Andrew Palacio. "It would have been really easy for this project to not go anywhere. I think it's pretty rare for even some of the better projects that students make to actually become a product."

Even if they don't have yards, the students might find themselves buying leaf blowers a few years from now, said one of the [students](#), Leen Alfaoury.

"You could put it on one of those museum clear glass stands," she joked.

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